

10/083,474

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\*\*\* YOU HAVE NEW MAIL \*\*\*

=> s oligonucleotides and dioxetane (3a) precursor?  
L1 9 OLIGONUCLEOTIDES AND DIOXETANE (3A) PRECURSOR?

=> dup rem l1  
PROCESSING COMPLETED FOR L1  
L2 9 DUP REM L1 (0 DUPLICATES REMOVED)

=&gt; d l2 bib abs 1-9

L2 ANSWER 1 OF 9 WPIDS COPYRIGHT 2005 THE THOMSON CORP on STN  
AN 2004-156552 [15] WPIDS  
DNN N2004-125252 DNC C2004-062219  
TI Detecting an analyte in a sample by exciting sensitizer label on analyte,  
permitting energy transfer to acceptor, reacting with chemiluminescent  
precursor, and correlating the signal obtained with the presence or  
absence of the analyte.  
DC B04 D16 S03  
IN LEVISON, D W; LEVISON, S; MOLLER, U; LEVISON, D W K  
PA (EMPB-N) EMP BIOTECH GMBH  
CYC 103  
PI WO 2004008122 A1 20040122 (200415)\* EN 46  
RW: AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS  
LU MC MW MZ NL OA PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW  
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT  
RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA  
ZM ZW  
US 2004014043 A1 20040122 (200416)  
AU 2003258990 A1 20040202 (200450)  
EP 1523668 A1 20050420 (200527) EN  
R: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LT LU LV  
MC MK NL PT RO SE SI SK TR  
ADT WO 2004008122 A1 WO 2003-US20988 20030703; US 2004014043 A1 US 2002-197288  
20020716; AU 2003258990 A1 AU 2003-258990 20030703; EP 1523668 A1 EP  
2003-764344 20030703, WO 2003-US20988 20030703  
FDT AU 2003258990 A1 Based on WO 2004008122; EP 1523668 A1 Based on WO  
2004008122  
PRAI US 2002-197288 20020716  
AN 2004-156552 [15] WPIDS  
AB WO2004008122 A UPAB: 20040302  
NOVELTY - Detecting (M1) an analyte in a sample comprises exciting a  
sensitizer label on the sample, allowing energy transfer to an acceptor,

reacting the excited acceptor with a chemiluminescent precursor to form a chemiluminescent compound emitting light in response to an activation source, exposing the compound to an activating source, and correlating the signal detected with the presence or absence of the analyte.

DETAILED DESCRIPTION - Detecting (M1) an analyte in a sample comprises exciting a sensitizer label on the sample, allowing energy transfer to an acceptor so that the sensitizer returns to an unexcited state, reacting the excited acceptor with a chemiluminescent precursor to form a chemiluminescent compound emitting light in response to an activation source, exposing the compound to an activating source, and correlating the signal detected with the presence or absence of the analyte.

INDEPENDENT CLAIMS are also included for:

(1) detecting (M2) a specific nucleotide sequence in a polynucleotide analyte comprising:

(a) providing a sensitizer-labeled analyte;  
(b) providing the specific sequence on a carrier;  
(c) hybridizing the labeled analyte to the specific sequence to form a hybridization complex;

(d) exposing the hybridization complex to light of an appropriate wavelength to electronically excite the sensitizer;

(e) permitting energy from the excited sensitizer label to be transferred to an excite an acceptor molecule, so that the sensitizer label returns to an unexcited state;

(f) reacting the excited acceptor molecule with a chemiluminescent precursor to form a chemiluminescent compound which emits light in response to an activation source;

(g) exposing the chemiluminescent compound to the activating source to produce a detectable signal;

(h) detecting the signal and correlating the signal with the presence or absence of the analyte in the sample;

(2) a system (I) for detecting an analyte comprising an analyte labeled with a sensitizer moiety, a chemiluminescent precursor compound capable of forming a chemiluminescent compound which emits light in response to an activation source and activating source capable of causing the chemiluminescent compound to produce a detectable signal; and

(3) a kit (II) for detecting an analyte comprising an analyte labeled with a sensitizer moiety and chemiluminescent precursor compound capable of forming a chemiluminescent compound which emits light in response to an activation source.

USE - (M1) is useful for detecting an analyte in a sample. The analyte is preferably nucleic acid and the method is useful for diagnosing (a predisposition to) a disease in a patient, where the signal obtained from a sample from a patient is compared with that from a control sample. The defect detected may be characterized by an alteration in sequence, expression, post-translation modification or a combination of these. The labeled analyte is hybridized to a carrier containing an array of **oligonucleotides** representing potential mutations in the analyte (claimed). (M1) is useful for deciphering the presence of a mutation within a given target nucleic acid sample.

ADVANTAGE - (M1) is efficient in detecting an analyte, preferably nucleic acid in a sample. (M1) is highly sensitivity and reliable in nucleic acid assays.

DESCRIPTION OF DRAWING(S) - The figure shows solid phase detection of immobilized target nucleic acid labeled with a sensitizer.

Dwg.5/7

L2 ANSWER 2 OF 9 USPATFULL on STN

AN 2004:18741 USPATFULL

TI Sensitizer-labeled analyte detection

IN Levison, Derek W.K., Jackson, NJ, UNITED STATES

Moller, Uwe, Berlin, GERMANY, FEDERAL REPUBLIC OF

Levison, Stuart, Jackson, NJ, UNITED STATES

PA emp Biotech GmbH, Berlin, GERMANY, FEDERAL REPUBLIC OF (U.S. corporation)

PI US 2004014043 A1 20040122

AI US 2002-197288 A1 20020716 (10)

DT Utility

FS APPLICATION  
LREP Daniel A. Scola, Jr., HOFFMANN & BARON, LLP, 6900 Jericho Turnpike,  
Syosset, NY, 11791  
CLMN Number of Claims: 71  
ECL Exemplary Claim: 1  
DRWN 7 Drawing Page(s)  
LN.CNT 1240

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods for detecting an analyte in a sample including the steps of: (a) exciting a sensitizer label on an analyte; (b) permitting energy from the excited sensitizer label to be transferred to and excite an acceptor molecule, whereby the sensitizer label returns to an unexcited state; (c) reacting the excited acceptor molecule with a chemiluminescent precursor to form a chemiluminescent compound which emits light in response to an activation source; (d) exposing the chemiluminescent compound to the activating source to produce a detectable signal; (e) detecting the signal; and (f) correlating the signal with the presence or absence of the analyte. The chemiluminescent precursor is desirably an olefin capable of being converted to a 1,2-dioxetane. Target amplification techniques, such as PCR, may be used to directly label a target analyte with a sensitizer.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 3 OF 9 USPATFULL on STN  
AN 2003:234702 USPATFULL  
TI Activating film for chemiluminescent assays and methods for use  
IN Moller, Uwe, Berlin, GERMANY, FEDERAL REPUBLIC OF  
Levison, Derek, Jackson, NJ, United States  
Levison, Stuart, Jackson, NJ, United States  
PA EMP Biotech GmbH, Berlin, GERMANY, FEDERAL REPUBLIC OF (non-U.S.  
corporation)  
PI US 6613578 B1 20030902  
WO 2000049406 20000824  
AI US 2002-913653 20020604 (9)  
WO 2000-US3863 20000216  
PRAI US 1999-120125P 19990216 (60)  
DT Utility  
FS GRANTED  
EXNAM Primary Examiner: Snay, Jeffrey  
LREP Hoffmann & Baron, LLP  
CLMN Number of Claims: 58  
ECL Exemplary Claim: 1  
DRWN 5 Drawing Figure(s); 5 Drawing Page(s)  
LN.CNT 790

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention relates to chemiluminescent assays which incorporate a second film or membrane which includes a solid chemical component for activation of a stable dioxetane. Decomposition of the stable dioxetane can be accomplished using a combination of heat and chemical treatment.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 4 OF 9 USPATFULL on STN  
AN 2002:198587 USPATFULL  
TI Dioxetane labeled probes and detection assays employing the same  
IN Bronstein, Irena, Newton, MA, UNITED STATES  
Edwards, Brooks, Cambridge, MA, UNITED STATES  
Martin, Christopher, Bedford, MA, UNITED STATES  
Voyta, John, Sudbury, MA, UNITED STATES  
PI US 2002106687 A1 20020808  
AI US 2002-83474 A1 20020227 (10)  
RLI Continuation of Ser. No. US 1999-340726, filed on 29 Jun 1999, PENDING  
Continuation of Ser. No. US 1998-18180, filed on 3 Feb 1998, GRANTED,  
Pat. No. US 6063574 Continuation of Ser. No. US 1996-767479, filed on 16  
Dec 1996, GRANTED, Pat. No. US 5800999  
DT Utility

FS APPLICATION  
LREP PIPER MARBURY RUDNICK & WOLFE LLP, Supervisor, Patent Prosecution  
Services, 1200 Nineteenth Street, N.W., Washington, DC, 20036-2412  
CLMN Number of Claims: 6  
ECL Exemplary Claim: 1  
DRWN 1 Drawing Page(s)  
LN.CNT 900

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Probes labeled with 1,2-dioxetane precursors can be employed in a variety of assays. The probes may be nucleic acid, peptide nucleic acid, proteins including enzyme, antibody or antigen, steroid, carbohydrate, drug or non-drug hapten. The probe is provided with a 1,2-dioxetane precursor bound thereto, generally either covalently, or a strong ligand bond. The dioxetane precursor moiety is converted to a bound 1,2-dioxetane by exposure to singlet oxygen. These dioxetane (labels) either spontaneously decompose, or are induced to decompose by an appropriate trigger to release light. The trigger may be a change in pH temperature, or an agent which removes a protective group. Assay formats in which these 1,2-dioxetane labeled probes and referents may be used to include hybridization assays, immuno assays, gel-based assays and Capillary Zone Electrophoresis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 5 OF 9 USPATFULL on STN  
AN 2002:238820 USPATFULL  
TI Dioxetane labeled probes and detection assays employing the same  
IN Bronstein, Irena, Newton, MA, United States  
Edwards, Brooks, Cambridge, MA, United States  
Martin, Christopher, Bedford, MA, United States  
Voyta, John, Sudbury, MA, United States  
PA Tropix, Inc., Bedford, MA, United States (U.S. corporation)  
PI US 6451531 B1 20020917  
AI US 1999-340726 19990629 (9)  
RLI Continuation of Ser. No. US 1998-18180, filed on 3 Feb 1998, now patented, Pat. No. US 6063574 Continuation of Ser. No. US 1996-767479, filed on 16 Dec 1996, now patented, Pat. No. US 5800999  
DT Utility  
FS GRANTED  
EXNAM Primary Examiner: Geist, Gary; Assistant Examiner: Owens, Jr., Howard V.  
LREP Marbury, Piper, Rudnick & Wolf, LLP, Kelber, Steven B.  
CLMN Number of Claims: 6  
ECL Exemplary Claim: 1  
DRWN 1 Drawing Figure(s); 1 Drawing Page(s)  
LN.CNT 947

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Probes labeled with 1,2-dioxetane precursors can be employed in a variety of assays. The probes may be nucleic acid, peptide nucleic acid, proteins including enzyme, antibody or antigen, steroid, carbohydrate, drug or non-drug hapten. The probe is provided with a 1,2-dioxetane precursor bound thereto, generally either covalently, or a strong ligand bond. The dioxetane precursor moiety is converted to a bound 1,2-dioxetane by exposure to singlet oxygen. These dioxetane (labels) either spontaneously decompose, or are induced to decompose by an appropriate trigger to release light. The trigger may be a change in pH temperature, or an agent which removes a protective group. Assay formats in which these 1,2-dioxetane labeled probes and referents may be used to include hybridization assays, immuno assays, gel-based assays and Capillary Zone Electrophoresis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 6 OF 9 USPATFULL on STN  
AN 2000:61391 USPATFULL  
TI Dioxetane labeled probes and detection assays employing the same  
IN Bronstein, Irena, Newton, MA, United States

Edwards, Brooks, Cambridge, MA, United States

Martin, Christopher, Bedford, MA, United States

Voyta, John, Sudbury, MA, United States

PA Tropix, Inc., Bedford, MA, United States (U.S. corporation)

PI US 6063574 20000516

AI US 1998-18180 19980203 (9)

RLI Continuation of Ser. No. US 1996-767479, filed on 16 Dec 1996, now patented, Pat. No. US 5800999

DT Utility

FS Granted

EXNAM Primary Examiner: Kunz, Gary L.

LREP Oblon, Spivak, McClelland, Maier & Neustadt, P.C.

CLMN Number of Claims: 5

ECL Exemplary Claim: 1,2

DRWN 1 Drawing Figure(s); 1 Drawing Page(s)

LN.CNT 868

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Probes labeled with 1,2-dioxetane precursors can be employed in a variety of assays. The probes may be nucleic acid, peptide nucleic acid, proteins including enzyme, antibody or antigen, steroid, carbohydrate, drug or non-drug hapten. The probe is provided with a 1,2-dioxetane precursor bound thereto, generally either covalently, or a strong ligand bond. The dioxetane precursor moiety is converted to a bound 1,2-dioxetane by exposure to singlet oxygen. These dioxetane (labels) either spontaneously decompose, or are induced to decompose by an appropriate trigger to release light. The trigger may be a change in pH temperature, or an agent which removes a protective group. Assay formats in which these 1,2-dioxetane labeled probes and referents may be used to include hybridization assays, immuno assays, gel-based assays and Capillary Zone Electrophoresis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 7 OF 9 USPATFULL on STN

AN 2000:8563 USPATFULL

TI Method of detecting a substance using enzymatically-induced decomposition of dioxetanes

IN Bronstein, Irena Y., Newton, MA, United States

PA Tropix, Inc., Bedford, MA, United States (U.S. corporation)

PI US 36536 20000125

US 4978614 19901218 (Original)

AI US 1997-958342 19971027 (8)

US 1989-382125 19890720 (Original)

RLI Continuation-in-part of Ser. No. US 1988-265406, filed on 26 Oct 1988, now abandoned which is a continuation-in-part of Ser. No. US 1986-889823, filed on 24 Jul 1986, now abandoned

DT Reissue

FS Granted

EXNAM Primary Examiner: Owens, Amelia

LREP Long Aldridge & Norman LLP, Kelber, Steven B.

CLMN Number of Claims: 70

ECL Exemplary Claim: 16

DRWN 22 Drawing Figure(s); 22 Drawing Page(s)

LN.CNT 1592

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB In an assay method in which a member of a specific binding pair is detected by means of an optically detectable reaction, the improvement wherein the optically detectable reaction includes the reaction, with an enzyme, of a dioxetane having the formula ##STR1## where T is a cycloalkyl or polycycloalkyl group bonded to the 4-membered ring portion of the dioxetane by a spiro linkage; Y is a fluorescent chromophore; X is hydrogen, alkyl, aryl, aralkyl, alkaryl, heteroalkyl, heteroaryl, cycloalkyl, cycloheteroalkyl, or enzyme-cleavable group; and Z is hydrogen or an enzyme-cleavable group, provided that at least one of X or Z must be an enzyme-cleavable group, so that the enzyme cleaves the enzyme-cleavable group from the dioxetane to form a negatively charged substituent bonded to the dioxetane, the negatively charged substituent

causing the dioxetane to decompose to form a luminescent substance that includes group Y of said dioxetane.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 8 OF 9 USPATFULL on STN  
AN 1998:104572 USPATFULL  
TI **Dioxetane-precursor**-labeled probes and detection  
assays employing the same  
IN Bronstein, Irena, Newton, MA, United States  
Edwards, Brooks, Cambridge, MA, United States  
Martin, Christopher, Bedford, MA, United States  
Voyta, John, Sudbury, MA, United States  
PA Tropix, Inc., Bedford, MA, United States (U.S. corporation)  
PI US 5800999 19980901  
AI US 1996-767479 19961216 (8)  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Kunz, Gary L.  
LREP Oblon, Spivak, McClelland, Maier & Neustadt, P.C.  
CLMN Number of Claims: 11  
ECL Exemplary Claim: 1,9  
DRWN 1 Drawing Figure(s); 1 Drawing Page(s)  
LN.CNT 911

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Probes labeled with 1,2-**dioxetane precursors** can be employed in a variety of assays. The probes may be nucleic acid, peptide nucleic acid, proteins including enzyme, antibody or antigen, steroid, carbohydrate, drug or non-drug hapten. The probe is provided with a 1,2-**dioxetane precursor** bound thereto, generally either covalently, or a strong ligand bond. The **dioxetane precursor** moiety is converted to a bound 1,2-dioxetane by exposure to singlet oxygen. These dioxetane (labels) either spontaneously decompose, or are induced to decompose by an appropriate trigger to release light. The trigger may be a change in pH temperature, or an agent which removes a protective group. Assay formats in which these 1,2-dioxetane labeled probes and referents may be used to include hybridization assays, immuno assays, gel-based assays and Capillary Zone Electrophoresis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L2 ANSWER 9 OF 9 USPATFULL on STN  
AN 90:96756 USPATFULL  
TI Method of detecting a substance using enzymatically-induced decomposition of dioxetanes  
IN Bronstein, Irena Y., Newton, MA, United States  
PA Tropix, Inc., Bedford, MA, United States (U.S. corporation)  
PI US 4978614 19901218  
AI US 1989-382125 19890720 (7)  
RLI Continuation-in-part of Ser. No. US 1988-265406, filed on 26 Oct 1988, now abandoned  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Raymond, Richard L.  
LREP Lyon & Lyon  
CLMN Number of Claims: 66  
ECL Exemplary Claim: 1,31  
DRWN 19 Drawing Figure(s); 12 Drawing Page(s)  
LN.CNT 1484

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB In an assay method in which a member of a specific binding pair is detected by means of an optically detectable reaction, the improvement wherein the optically detectable reaction includes the reaction, with an enzyme, of a dioxetane having the formula ##STR1## where T is a cycloalkyl or polycycloalkyl group bonded to the 4-membered ring portion of the dioxetane by a spiro linkage; Y is a fluorescent chromophore; X is hydrogen, alkyl, aryl, aralkyl, alkaryl, heteroalkyl, heteroaryl,

cycloalkyl, cycloheteroalkyl, or enzyme-cleavable group; and Z is hydrogen or an enzyme-cleavable group, provided that at least one of X or Z must be an enzyme-cleavable group, so that the enzyme cleaves the enzyme-cleavable group from the dioxetane to form a negatively charged substituent bonded to the dioxetane, the negatively charged substituent causing the dioxetane to decompose to form a luminescent substance that includes group Y of said dioxetane.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=>

=> s oligonucleotide? (4a) dioxetane?  
L3 12 OLIGONUCLEOTIDE? (4A) DIOXETANE?

=> s 13 not 12  
L4 8 L3 NOT L2

=> dup rem 14  
PROCESSING COMPLETED FOR L4  
L5 6 DUP REM L4 (2 DUPLICATES REMOVED)

=> d 15 bib abs 1-6

L5 ANSWER 1 OF 6 USPATFULL on STN  
AN 1999:19356 USPATFULL  
TI 1,2-dioxetane compounds as chemiluminescent labels for organic and  
biological molecules  
IN Schaap, Arthur P., Detroit, MI, United States  
Romano, Louis J., Detroit, MI, United States  
Goudar, Jaidev S., Detroit, MI, United States  
PA Board of Governors of Wayne State University, Detroit, MI, United States  
(U.S. corporation)  
PI US 5869698 19990209  
AI US 1997-910267 19970812 (8)  
RLI Division of Ser. No. US 1994-218308, filed on 25 Mar 1994 which is a  
continuation-in-part of Ser. No. US 1988-289837, filed on 27 Dec 1988,  
now patented, Pat. No. US 5616729, issued on 1 Apr 1997 which is a  
continuation-in-part of Ser. No. US 1986-887139, filed on 17 Jul 1986,  
now abandoned  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Owens, Amelia  
LREP McLeod, Ian C.  
CLMN Number of Claims: 10  
ECL Exemplary Claim: 1  
DRWN 5 Drawing Figure(s); 2 Drawing Page(s)  
LN.CNT 1054

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Dioxetanes which couple with organic and biological molecules of the  
formula: ##STR1## wherein X is a leaving group which is removed by an  
activating agent to produce light, wherein A is a coupling substituent,  
Ar is a substituent selected from the group consisting of phenyl and  
naphthyl to provide a label are described. R.sub.1 is an optional linker  
substituent and can have between 1 and 30 carbon atoms with some of the  
carbon atoms being oxygen, sulfur, nitrogen or phosphorus. Ar as phenyl  
is preferred. The dioxetane coupled molecules are useful in assays of  
all types where luminescence can be used as an indicator.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 2 OF 6 USPATFULL on STN  
AN 1998:99003 USPATFULL  
TI Alkene intermediates for preparing 1,2-dioxetane compounds  
IN Schaap, Arthur P., Detroit, MI, United States  
Romano, Louis J., Detroit, MI, United States  
PA Board of Governors of Wayne State University, Detroit, MI, United States  
(U.S. corporation)  
PI US 5795987 19980818  
AI US 1997-910072 19970812 (8)  
RLI Division of Ser. No. US 1994-218308, filed on 25 Mar 1994 which is a  
continuation-in-part of Ser. No. US 1988-289837, filed on 27 Dec 1988,  
now patented, Pat. No. US 5616729 which is a continuation-in-part of  
Ser. No. US 1986-887139, filed on 17 Jul 1986, now abandoned  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Owens, Amelia  
LREP McLeod, Ian C.  
CLMN Number of Claims: 19



ECL Exemplary Claim: 1  
DRWN 4 Drawing Figure(s); 2 Drawing Page(s)  
LN.CNT 1105

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Dioxetanes which couple with organic and biological molecules of the formula: ##STR1## wherein X is a leaving group which is removed by an activating agent to produce light, wherein A is a coupling substituent, Ar is a substituent selected from the group consisting of phenyl and naphthyl to provide a label are described. R.sub.1 is an optional linker substituent and can have between 1 and 30 carbon atoms with some of the carbon atoms being oxygen, sulfur, nitrogen or phosphorus. Ar as phenyl is preferred. The dioxetane coupled molecules are useful in assays of all types where luminescence can be used as an indicator.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 3 OF 6 USPATFULL on STN

AN 1998:72765 USPATFULL

TI 1,2-Dioxetane compounds as chemiluminescent labels for organic and biological molecules

IN Schaap, Arthur P., Detroit, MI, United States

Romano, Louis J., Detroit, MI, United States

Goudar, Jaidev S., Detroit, MI, United States

PA Board of Governors of Wayne State University, Detroit, MI, United States (U.S. corporation)

PI US 5770743 19980623

AI US 1994-218308 19940325 (8)

RLI Continuation of Ser. No. US 1990-579837, filed on 7 Sep 1990, now abandoned which is a continuation-in-part of Ser. No. US 1988-289837, filed on 27 Dec 1988, now patented, Pat. No. US 5616729 which is a continuation-in-part of Ser. No. US 1986-887139, filed on 17 Jul 1986

DT Utility

FS Granted

EXNAM Primary Examiner: Owens, Amelia

LREP McLeod, Ian C.

CLMN Number of Claims: 10

ECL Exemplary Claim: 1

DRWN 5 Drawing Figure(s); 2 Drawing Page(s)

LN.CNT 983

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Dioxetanes which couple with organic and biological molecules of the formula: ##STR1## wherein X is a leaving group which is removed by an activating agent other than an enzyme which is removed by an activating agent to produce light, wherein A is a coupling substituent, Ar is a substituent selected from the group consisting of phenyl and naphthyl to provide a label are described. R.sub.1 is an optional linker substituent and can have between 1 and 30 carbon atoms with some of the carbon atoms being oxygen, sulfur, nitrogen or phosphorus. Ar as phenyl is preferred. The dioxetane coupled molecules are useful in assays of all types where luminescence can be used as an indicator.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN

AN 1997:270683 CAPLUS

DN 126:247539

TI Homogeneous hybridization assay with label-specific receptors

IN Neuenhofer, Stephan; Skrzipczyk, Heinz Juergen; Madry, Norbert; Leutsch, Thomas; Kaesmarker, Reinhard; Uhlmann, Eugen

PA Behringwerke Ag, Germany

SO Eur. Pat. Appl., 11 pp.

CODEN: EPXXDW

DT Patent

LA German

FAN.CNT 1

|    | PATENT NO. | KIND | DATE     | APPLICATION NO. | DATE     |
|----|------------|------|----------|-----------------|----------|
| PI | EP 763601  | A2   | 19970319 | EP 1996-113136  | 19960816 |

EP 763601 A3 20020102  
 R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, LU, NL, PT, SE  
 DE 19534122 A1 19970320 DE 1995-19534122 19950914  
 AU 9665600 A1 19970320 AU 1996-65600 19960912  
 CA 2185516 AA 19970315 CA 1996-2185516 19960913  
 US 5858668 A 19990112 US 1996-712094 19960916  
 JP 09220100 A2 19970826 JP 1996-245249 19960917  
 PRAI DE 1995-19534122 A 19950914

AB The title hybridization assay comprises hybridization of the analyte nucleic acid with an analyte-specific nucleic acid which is labeled with a fluorescent, phosphorescent, chemiluminescent, bioluminescent, or electroluminescent group. Background signal is reduced by quenching the signal from non-complexed reporter groups with a reporter group-binding substance, e.g. an anti-reporter group (monoclonal) antibody.

L5 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2005 ACS on STN  
 AN 1996:600910 CAPLUS  
 DN 125:266719  
 TI Methylene blue-oligonucleotide conjugates: synthesis and application in DNA analysis  
 AU Schubert, Frank; Moeller, Uwe; Cech, Dieter  
 CS Institut Chemie, Humboldt Universitaet Berlin, Berlin, 10099, Germany  
 SO Collection of Czechoslovak Chemical Communications (1996), 61(Spec. Issue), S140-S141  
 CODEN: CCCCAK; ISSN: 0010-0765  
 PB Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic  
 DT Journal  
 LA English  
 AB A chemical amplification reaction for detection of nucleic acids is described. The method uses the photosensitizing properties of methylene blue to amplify thermally stable olefin dioxetanes by repetitions of a photochem. excitation/oxygen quenching cycle. After amplification, the dioxetanes are decomposed, with the generation of light, at extremely alkaline pH and the emissions can be detected photog. with X-ray film. Lower limits of detection of 20-mer oligonucleotide was 0.1 ng.

L5 ANSWER 6 OF 6 BIOSIS COPYRIGHT (c) 2005 The Thomson Corporation on STN  
 DUPLICATE 1  
 AN 1992:303977 BIOSIS  
 DN PREV199294017127; BA94:17127  
 TI OLIGONUCLEOTIDE FINGERPRINTING OF PLANT AND FUNGAL GENOMES A COMPARISON OF RADIOACTIVE COLORIGENIC AND CHEMILUMINESCENT DETECTION METHODS.  
 AU BIERWERTH S [Reprint author]; KAHL G; WEIGAND F; WEISING K  
 CS PFLANZLICHE MOLEKULARBIOLOGIE, BOTANISCHES INST, SIESMAYERSTR 70, W-6000 FRANKFURT AM MAIN, GERMANY  
 SO Electrophoresis, (1992) Vol. 13, No. 3, pp. 115-122.  
 CODEN: ELCTDN. ISSN: 0173-0835.  
 DT Article  
 FS BA  
 LA ENGLISH  
 ED Entered STN: 27 Jun 1992  
 Last Updated on STN: 27 Jun 1992  
 AB Digoxigenated oligonucleotide probes complementary to simple repetitive DNA sequences were introduced into nonradioactive fingerprint analysis of plant and fungal DNA. The fragment patterns, obtained by blot hybridization of TaqI-restricted DNA from chickpea (*Cicer arietinum*) and its fungal pathogen *Ascochyta rabiei* with digoxigenated probes and either a colorigenic or a chemiluminescent detection method, were compared to those obtained with 32P-labeled probes. In combination with alkaline phosphatase and its chemiluminescent substrate 3-(2'-spiroadamantane)-4-methoxy-4-(3"-phosphoryloxy)-phenyl-1,2-dioxetane (AMPPD) digoxigenated **oligonucleotides** yielded clear-cut fingerprints with high signal-to-background ratios within several minutes of exposure to X-ray films. The chemiluminescence reaction remained stable for at least two weeks. A comparison of banding patterns obtained by radioactive versus digoxigenin-based hybridization and detection techniques revealed substantial differences in the relative signal intensities of bands. Both

nonradioactive techniques show a tendency to "equalize" band intensity differences. Whereas  $^{32}\text{P}$ -labeled oligonucleotides are also applicable to in situ hybridization with DNA immobilized in dried agarose gels, gel hybridization did not work efficiently with digoxigenated probes and either substrate.

=> s dioxetane precursor? (4a) oligonucleotide?  
L10 4 DIOXETANE PRECURSOR? (4A) OLIGONUCLEOTIDE?

=> d 110 bib abs 1-4

L10 ANSWER 1 OF 4 USPATFULL on STN  
AN 2002:238820 USPATFULL  
TI Dioxetane labeled probes and detection assays employing the same  
IN Bronstein, Irena, Newton, MA, United States  
Edwards, Brooks, Cambridge, MA, United States  
Martin, Christopher, Bedford, MA, United States  
Voyta, John, Sudbury, MA, United States  
PA Tropix, Inc., Bedford, MA, United States (U.S. corporation)  
PI US 6451531 B1 20020917  
AI US 1999-340726 19990629 (9)  
RLI Continuation of Ser. No. US 1998-18180, filed on 3 Feb 1998, now  
patented, Pat. No. US 6063574 Continuation of Ser. No. US 1996-767479,  
filed on 16 Dec 1996, now patented, Pat. No. US 5800999  
DT Utility  
FS GRANTED  
EXNAM Primary Examiner: Geist, Gary; Assistant Examiner: Owens, Jr., Howard V.  
LREP Marbury, Piper, Rudnick & Wolf, LLP, Kelber, Steven B.  
CLMN Number of Claims: 6  
ECL Exemplary Claim: 1  
DRWN 1 Drawing Figure(s); 1 Drawing Page(s)  
LN.CNT 947  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
AB Probes labeled with 1,2-dioxetane precursors can be employed in a  
variety of assays. The probes may be nucleic acid, peptide nucleic acid,  
proteins including enzyme, antibody or antigen, steroid, carbohydrate,  
drug or non-drug hapten. The probe is provided with a 1,2-dioxetane  
precursor bound thereto, generally either covalently, or a strong ligand  
bond. The dioxetane precursor moiety is converted to a bound  
1,2-dioxetane by exposure to singlet oxygen. These dioxetane (labels)  
either spontaneously decompose, or are induced to decompose by an  
appropriate trigger to release light. The trigger may be a change in pH  
temperature, or an agent which removes a protective group. Assay formats  
in which these 1,2-dioxetane labeled probes and referents may be used to  
include hybridization assays, immuno assays, gel-based assays and  
Capillary Zone Electrophoresis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 2 OF 4 USPATFULL on STN  
AN 2002:198587 USPATFULL  
TI Dioxetane labeled probes and detection assays employing the same  
IN Bronstein, Irena, Newton, MA, UNITED STATES  
Edwards, Brooks, Cambridge, MA, UNITED STATES  
Martin, Christopher, Bedford, MA, UNITED STATES  
Voyta, John, Sudbury, MA, UNITED STATES  
PI US 2002106687 A1 20020808  
AI US 2002-83474 A1 20020227 (10)  
RLI Continuation of Ser. No. US 1999-340726, filed on 29 Jun 1999, PENDING  
Continuation of Ser. No. US 1998-18180, filed on 3 Feb 1998, GRANTED,  
Pat. No. US 6063574 Continuation of Ser. No. US 1996-767479, filed on 16  
Dec 1996, GRANTED, Pat. No. US 5800999  
DT Utility  
FS APPLICATION  
LREP PIPER MARBURY RUDNICK & WOLFE LLP, Supervisor, Patent Prosecution  
Services, 1200 Nineteenth Street, N.W., Washington, DC, 20036-2412  
CLMN Number of Claims: 6  
ECL Exemplary Claim: 1  
DRWN 1 Drawing Page(s)  
LN.CNT 900  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
AB Probes labeled with 1,2-dioxetane precursors can be employed in a  
variety of assays. The probes may be nucleic acid, peptide nucleic acid,

proteins including enzyme, antibody or antigen, steroid, carbohydrate, drug or non-drug hapten. The probe is provided with a 1,2-dioxetane precursor bound thereto, generally either covalently, or a strong ligand bond. The dioxetane precursor moiety is converted to a bound 1,2-dioxetane by exposure to singlet oxygen. These dioxetane (labels) either spontaneously decompose, or are induced to decompose by an appropriate trigger to release light. The trigger may be a change in pH temperature, or an agent which removes a protective group. Assay formats in which these 1,2-dioxetane labeled probes and referents may be used to include hybridization assays, immuno assays, gel-based assays and Capillary Zone Electrophoresis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 3 OF 4 USPATFULL on STN  
AN 2000:61391 USPATFULL  
TI Dioxetane labeled probes and detection assays employing the same  
IN Bronstein, Irena, Newton, MA, United States  
Edwards, Brooks, Cambridge, MA, United States  
Martin, Christopher, Bedford, MA, United States  
Voyta, John, Sudbury, MA, United States  
PA Tropix, Inc., Bedford, MA, United States (U.S. corporation)  
PI US 6063574 20000516  
AI US 1998-18180 19980203 (9)  
RLI Continuation of Ser. No. US 1996-767479, filed on 16 Dec 1996, now  
patented, Pat. No. US 5800999  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Kunz, Gary L.  
LREP Oblon, Spivak, McClelland, Maier & Neustadt, P.C.  
CLMN Number of Claims: 5  
ECL Exemplary Claim: 1,2  
DRWN 1 Drawing Figure(s); 1 Drawing Page(s)  
LN.CNT 868

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Probes labeled with 1,2-dioxetane precursors can be employed in a variety of assays. The probes may be nucleic acid, peptide nucleic acid, proteins including enzyme, antibody or antigen, steroid, carbohydrate, drug or non-drug hapten. The probe is provided with a 1,2-dioxetane precursor bound thereto, generally either covalently, or a strong ligand bond. The dioxetane precursor moiety is converted to a bound 1,2-dioxetane by exposure to singlet oxygen. These dioxetane (labels) either spontaneously decompose, or are induced to decompose by an appropriate trigger to release light. The trigger may be a change in pH temperature, or an agent which removes a protective group. Assay formats in which these 1,2-dioxetane labeled probes and referents may be used to include hybridization assays, immuno assays, gel-based assays and Capillary Zone Electrophoresis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L10 ANSWER 4 OF 4 USPATFULL on STN  
AN 1998:104572 USPATFULL  
TI Dioxetane-precursor-labeled probes and detection assays employing the same  
IN Bronstein, Irena, Newton, MA, United States  
Edwards, Brooks, Cambridge, MA, United States  
Martin, Christopher, Bedford, MA, United States  
Voyta, John, Sudbury, MA, United States  
PA Tropix, Inc., Bedford, MA, United States (U.S. corporation)  
PI US 5800999 19980901  
AI US 1996-767479 19961216 (8)  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Kunz, Gary L.  
LREP Oblon, Spivak, McClelland, Maier & Neustadt, P.C.  
CLMN Number of Claims: 11  
ECL Exemplary Claim: 1,9

DRWN 1 Drawing Figure(s); 1 Drawing Page(s)

LN.CNT 911

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB . . Probes labeled with 1,2-dioxetane precursors can be employed in a variety of assays. The probes may be nucleic acid, peptide nucleic acid, proteins including enzyme, antibody or antigen, steroid, carbohydrate, drug or non-drug hapten. The probe is provided with a 1,2-dioxetane precursor bound thereto, generally either covalently, or a strong ligand bond. The dioxetane precursor moiety is converted to a bound 1,2-dioxetane by exposure to singlet oxygen. These dioxetane (labels) either spontaneously decompose, or are induced to decompose by an appropriate trigger to release light. The trigger may be a change in pH temperature, or an agent which removes a protective group. Assay formats in which these 1,2-dioxetane labeled probes and referents may be used to include hybridization assays, immuno assays, gel-based assays and Capillary Zone Electrophoresis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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